

### ABSTRACT OF THE DISCLOSURE

Systems and methods for assessing the formation of an ice ball during a cryoablation procedure are disclosed. The system includes a reference electrode that is placed in contact with the patient and a cryocatheter having a cryotip. An electronic circuit is connected to both the cryotip and the reference electrode to measure the impedance therebetween which can be used to assess the formation of an ice ball during a cryoablation procedure. An exemplary measurement signal has a frequency of approximately 20khz and an RMS voltage of approximately 0.5V. With the cryotip positioned proximate the target tissue, a reference impedance is measured. Next, the conductive tip member is placed in contact with the target tissue and cooled to form an ice ball. During cooling, impedance measurement(s) are taken and compared with the reference impedance to assess the formation of the ice ball.